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Activity 2 Documentation

Modifying an Image

1.) Run ubuntu container with ‘/bin/bash’ and update software list using ‘apt-get update’

```
PS C:\WINDOWS\system32> docker run -it ubuntu:16.04 /bin/bash
root@9764e44bec81:/# ping
bash: ping: command not found
root@9764e44bec81:/# apt-get update
Get:1 http://archive.ubuntu.com/ubuntu xenial InRelease [247 kB]
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Get:3 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:4 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Get:5 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [2051 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial/main amd64 Packages [1558 kB]
Get:7 http://archive.ubuntu.com/ubuntu xenial/restricted amd64 Packages [14.1 kB]
Get:8 http://archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [9827 kB]
Get:9 http://security.ubuntu.com/ubuntu xenial-security/restricted amd64 Packages [15.9 kB]
Get:10 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [984 kB]
Get:11 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8820 B]
Get:12 http://archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [176 kB]
Get:13 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [2559 kB]
Get:14 http://archive.ubuntu.com/ubuntu xenial-updates/restricted amd64 Packages [16.4 kB]
Get:15 http://archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages [1544 kB]
Get:16 http://archive.ubuntu.com/ubuntu xenial-updates/multiverse amd64 Packages [26.2 kB]
Get:17 http://archive.ubuntu.com/ubuntu xenial-backports/main amd64 Packages [10.9 kB]
Get:18 http://archive.ubuntu.com/ubuntu xenial-backports/universe amd64 Packages [12.7 kB]
Fetched 19.4 MB in 1min 21s (239 kB/s)
Reading package lists... Done
root@9764e44bec81:/#
```

2. Run ‘apt-get install iputils-ping’ to install the package containing ‘ping’

```
root@9764e44bec81:/# apt-get install iputils-ping
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libffi6 libgmp10 libgnutls-openssl127 libgnutls30 libhogweed4 libidn11 libnettle6 libp11-kit0 libtasn1-6
Suggested packages:
  gnutls-bin
The following NEW packages will be installed:
  iputils-ping libffi6 libgmp10 libgnutls-openssl127 libgnutls30 libhogweed4 libidn11 libnettle6 libp11-kit0 libtasn1-6
0 upgraded, 10 newly installed, 0 to remove and 6 not upgraded.
Need to get 1307 kB of archives.
After this operation, 3781 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu xenial/main amd64 libgmp10 amd64 2:6.1.0+dfsg-2 [240 kB]
Get:2 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libnettle6 amd64 3.2-1ubuntu0.16.04.2 [93.7 kB]
Get:3 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libhogweed4 amd64 3.2-1ubuntu0.16.04.2 [136 kB]
Get:4 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libidn11 amd64 1.32-3ubuntu1.2 [46.5 kB]
Get:5 http://archive.ubuntu.com/ubuntu xenial/main amd64 libffi6 amd64 3.2.1-4 [17.8 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libp11-kit0 amd64 0.23.2-5~ubuntu16.04.2 [107 kB]
Get:7 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libtasn1-6 amd64 4.7-3ubuntu0.16.04.3 [43.5 kB]
Get:8 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libgnutls30 amd64 3.4.10-4ubuntu1.8 [548 kB]
Get:9 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libgnutls-openssl127 amd64 3.4.10-4ubuntu1.8 [21.9 kB]
Get:10 http://archive.ubuntu.com/ubuntu xenial/main amd64 iputils-ping amd64 3:20121221-5ubuntu2 [52.7 kB]
Fetched 1307 kB in 10s (127 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libgmp10:amd64.
(Reading database ... 4780 files and directories currently installed.)
Preparing to unpack .../libgmp10_2%3a6.1.0+dfsg-2_amd64.deb ...
Unpacking libgmp10:amd64 (2:6.1.0+dfsg-2) ...
```

3.) We can now use 'ping' command

```
root@9764e44bec81:/# ping youtube.com
PING youtube.com (142.250.66.142) 56(84) bytes of data.
64 bytes from 142.250.66.142: icmp_seq=1 ttl=37 time=79.3 ms
64 bytes from 142.250.66.142: icmp_seq=2 ttl=37 time=73.5 ms
64 bytes from 142.250.66.142: icmp_seq=3 ttl=37 time=81.3 ms
64 bytes from 142.250.66.142: icmp_seq=4 ttl=37 time=65.7 ms
64 bytes from 142.250.66.142: icmp_seq=5 ttl=37 time=79.5 ms
64 bytes from 142.250.66.142: icmp_seq=6 ttl=37 time=66.9 ms
64 bytes from 142.250.66.142: icmp_seq=7 ttl=37 time=319 ms
64 bytes from 142.250.66.142: icmp_seq=8 ttl=37 time=119 ms
64 bytes from 142.250.66.142: icmp_seq=9 ttl=37 time=260 ms
64 bytes from 142.250.66.142: icmp_seq=10 ttl=37 time=810 ms
^C
--- youtube.com ping statistics ---
11 packets transmitted, 10 received, 9% packet loss, time 10009ms
rtt min/avg/max/mdev = 65.737/195.684/810.081/221.670 ms
root@9764e44bec81:/#
```

Committing changes

1.)Commit new changes from container to a new image using ‘docker commit’

```
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
9764e44bec81   ubuntu:16.04   "/bin/bash"             12 minutes ago Exited (0) 11 seconds ago          epic_lewin
PS C:\WINDOWS\system32> docker commit --help

Usage:  docker commit [OPTIONS] CONTAINER [REPOSITORY[:TAG]]

Create a new image from a container's changes

Options:
  -a, --author string      Author (e.g., "John Hannibal Smith
                             <hannibal@a-team.com>")
  -c, --change list        Apply Dockerfile instruction to the created image
  -m, --message string     Commit message
  -p, --pause              Pause container during commit (default true)
PS C:\WINDOWS\system32> docker commit -a 'Krizner Urmeneta' -m 'added ping utility' 9764e44bec81 krizner/ping
sha256:bb0f6382870d99cefbcb844b23d3e48854c215f7b3b3ef065ae8c95140135057b
PS C:\WINDOWS\system32> docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
krizner/ping   latest    bb0f6382870d  13 seconds ago 169MB
ubuntu         16.04    aefd7f02ae24  3 weeks ago   134MB
PS C:\WINDOWS\system32> docker run -it --rm krizner/ping /bin/bash
root@a7b596789f03:/# ping google.com
PING google.com (142.250.204.110) 56(84) bytes of data:
64 bytes from 142.250.204.110: icmp_seq=1 ttl=37 time=68.3 ms
64 bytes from 142.250.204.110: icmp_seq=2 ttl=37 time=181 ms
64 bytes from 142.250.204.110: icmp_seq=3 ttl=37 time=65.8 ms
64 bytes from 142.250.204.110: icmp_seq=4 ttl=37 time=63.5 ms
64 bytes from 142.250.204.110: icmp_seq=5 ttl=37 time=63.5 ms
64 bytes from 142.250.204.110: icmp_seq=6 ttl=37 time=90.6 ms
64 bytes from 142.250.204.110: icmp_seq=7 ttl=37 time=79.9 ms
^C
--- google.com ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 6009ms
rtt min/avg/max/mdev = 63.531/87.623/181.404/39.400 ms
root@a7b596789f03:/#
```